Type Certification Conformities

Engine and Propeller Directorate
DER Recurrent Seminar

May 4, 2004
Atlantic City, New Jersey

Type Certification Conformities

Presented
By:

Paul Horridge

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Type Certification Conformities

Objectives

- Roles and responsibilities of FAA Designees, the FAA, and the applicant in the conformity inspection process
- FAA regulatory conformity requirements
- FAA conformity publications, guidelines, and information

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Conformity Inspection Process Overview

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Type Certification Conformities

Conformity Inspection Process

A conformity inspection is required…

…to ensure that the product being certificated complies with the type design

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FAA Conformity Inspections

- Conformity inspections are conducted to determine that…
  - the applicant has completed the conformity inspection and recorded results on FAA Form 8130-9
  - products conform to the approved design drawings and specifications

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Type Certification Conformities

FAR Subpart B - Part 21 Regulations

21.31 Type Design.

The type design consists of:

- Drawings
- Specifications
- Airworthiness Limitations
- Any other data necessary

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Based in Rule

14 CFR Part 21, Section 21.33 Inspection and Test

- (2)(b) “Each applicant must make all inspections and tests necessary to determine-
- (2)(b)(2) “That materials and products conform to the specifications in the type design;”

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Type Certification Conformities

Based in Rule - Cont.

- (3) "That parts of the products conform to the drawing in the type design; and
- (4) That the manufacturing processes, construction and assembly conform to those specified in the type design."

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FAR Subpart B - Part 21 Regulations

21.53 Statement of Conformity.

(b) Each applicant must submit a Statement of Conformity (FAA Form 8130-9) to the Administrator for each aircraft or part thereof presented to the Administrator for tests.

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Type Certification Conformities

Conformity Inspection Regulatory References

FAA Order 8110-4 - Type Certification Process:

❖ Establishes procedures to accomplish the evaluation and approval of aircraft type design data and changes to approved type design data.

❖ Chapter 5 - Manufacturing and Engineering Responsibilities and Functions Relative to Inspection and Test

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General

It is the primary responsibility of the FAA manufacturing designee to determine that…

❖ Prototype products conform to drawings, specifications and special processes

❖ The DER's primary responsibility to determine compliance to the regulations

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Type Certification Conformities

FAA Order 8110.4B

Paragraph 2-11F:

- "(4)(a) The conformity of the test article, test setup, test procedures used, and the validity of the test results must be established for each test conducted to show compliance with a type certification requirement."

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FAA Order 8110.4B

Paragraph 2-11F:

- "(g) A conformity inspection is required to ensure that the product being certificated complies with the type design."
- "An FAA conformity inspection should be successfully conducted before any official FAA tests (ground or flight) are conducted."

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Type Certification Conformities

FAA Order 8110.4B

Paragraph 2-11F (g):

- "It is the responsibility of FAA Manufacturing Inspectors, Designated Manufacturing Inspection Representatives (DMIR's), or Designated Airworthiness Representatives (DAR's) to determine that the product conforms with drawings, specifications, and special processes."

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DER Actions - Within a Type Certification Project

- Approves/recommends approval Test Plans
- Prepares FAA Form 8120-10 Request for Conformity or FAA Form 8110-1 Type Inspection Authorization
- Identifies specific design data (revision and date)
- Assigns a unique tracking number to RFC

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Type Certification Conformities

DER Actions - Within a Type Certification Project - Cont.

- Submits RFC/TIA to Mfg. Cert. Specialist or FAA DMIR/ODAR
- Dispositions unsatisfactory/discrepant items (8100-1/8130-9)
- Ensures successful completion of RFC's

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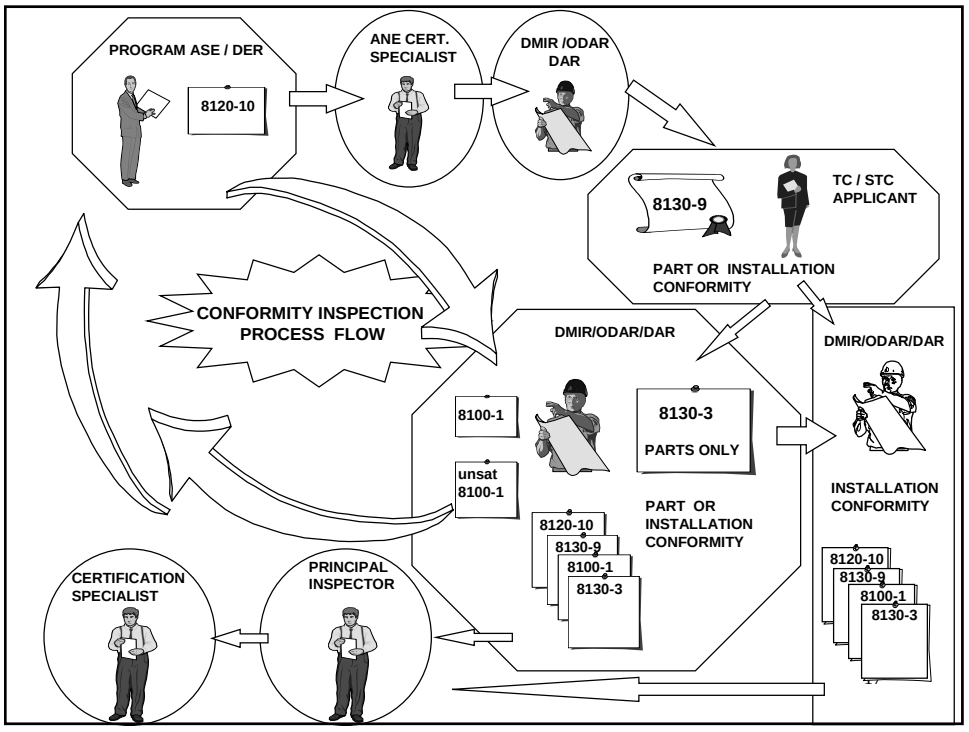

Type Certification Conformities

Questions asked when identifying articles to be conformed

- What articles should be conformed?
- Quantity of parts to be conformed?
- When and where should the article be conformed?

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General Determination

- Previously type certificated products:
  - Determine whether these parts have been subjected to material review action

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Type Certification Conformities

General Determination - Cont.

- Conformity determination may be made through…
  - Planned system of spot-checking
  - Reviewing inspection records and material review dispositions

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General Determination - Cont.

- Whenever special unique inspections are required
  - Provide on FAA Form 8120-10 under the "special instructions" section
- Degree of inspection by the manufacturing designee based on
  - Experience of the applicant
  - Complexity of the product

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Type Certification Conformities

Nonconformance/Deviations

- All conformity inspection activity is to be documented on FAA Form 8100-1, Conformity Inspection Record
- Nonconformances and deviations to type design must be approved by FAA engineering or an approved DER prior to accepting the product
- The FAA can approve a system where the manufacturing designee submits nonconformances to the DER for approval

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Official Type Inspection Authorization (TIA)

Final inspection of the completed prototype is performed just prior to official FAA test.

- Type Inspection Authorization is issued when the examination of the technical data required for type certification has reached a point where it appears that the aircraft or article being examined will meet the pertinent regulations

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Type Certification Conformities

FAA Forms

FAA Form 8120-10 Request for Conformity

FAA Form 8130-9 Statement of Conformity

FAA Form 8100-1 Conformity Inspection Record

FAA Form 8130-3 Airworthiness Approval Tag

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U. S. Department of Transportation
Federal Aviation Administration

Request for Conformity

To: ANE-MIDO-42 Attention: Mr. Paul Horridge

Request for Conformity Inspection

☒ Part Conformity
☐ Installation
☐ Other

Project No. TC1649EN-E
Date: April 4, 2002

A Conformity Inspection pertaining to the subject is requested for the following:

Applicant Name: General Electric Aircraft Engines
Company Name: Middleton Aerospace Corporation
Street: 206 S. Main St
City: Middleton State: MA Zip Code: 01949
Time/Date Available: June 1, 2002 ☒ Applicant will Contact FAA
Type Installation: Fan Case
Make/Model: CF34-8D Quantity: 2
Requesting Document (P.O.) and Date: P.O. 1234 dated March 25, 2002
Design Data (with Revision/Date): 2070M20G01AA Revision A, dated March 1, 2002
Special Instructions: Verify all critical dimensions identified on drawing
Contact: Mr. Steve Washafsky at (978) 774-6000 (Phone Number)
FAA Project Manager: Mr. Gene Triozzi at (781) 238-7148 (Phone Number)
Remarks: The applicant request's this RFC be delegated to supplier DMIR, Mr. Joe Smith.

☐ T.I.A. Issued
☐ T.I.R. Required
☒ FAA 8130-3 Tags Required
☒ FAA Form 8100-1 Required
☒ FAA Form 8130-9 Required

Note: Please return this request for conformity with the FAA conformity document to: Mr. Paul Horridge
12 New England Executive Park, Burlington, MA 01803

FAA Form 8120-10 (5-90)

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Type Certification Conformities

OMB: 2120-0018

STATEMENT OF CONFORMITY

Section I — Aircraft N/A (Parts)

1. Make | 2. Model

3. Serial No. | 4. Registration No.

Section II — Engine

1. Make | 2. Model

3. Serial No.

Section III — Propeller

1. Make | 2. Model

3. Blade Model | 4. Hub Serial No.

5. Blade Serial Nos.

Section IV — Certification

I hereby certify that: Parts are in conformity with Air Medical Inc. Master Drawing List 2001, Rev. V, dated 4/6/87

☒ A. I have complied with Section 21.33(a).

☐ B. The aircraft described above, produced under type certificate only (FAR 21 Subpart F), conforms to its type certificate, is in a condition for safe operation, and was flight checked on _____ (Date)

☐ C. The engine or propeller described above, presented herewith for type certification, conforms to the type design thereof.

☐ D. The engine or propeller described above, produced under type certificate only (FAR 21 Subpart F), conforms to its type certificate and is in a condition for safe operation. The engine or, if applicable, the variable pitch propeller was subjected by the manufacturer to a final operational check on _____ (Date)

Deviations: None

Signature of Person: W. A. Smith — W.A Smith — Title: Quality Control Manager

Organization: Aircraft Company — Date: 10/27/87

FAA Form 8130-9 (For use Previous Edition Representations)

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Conformity Inspection Record

1. Project Number: T1A/Request Date:
2. Sheet 1 of 2 Sheets
3. Applicant: Aerospace Inc Manufacturer: Supplier - M&M machine co
4. Beginning Date: 9/5/98
5. Ending Date: 9/6/98
6. Model Aero –100, s/nxxx, N-
7. Inspected By Bob Denver Bob Denver ANM10000 (signature)

8. Item No.	9. Nomenclature of Item Inspected	10. Drawing, Document	11. Revision and date	12. number of items determined SAT	UNSAT	13. Comments
1	Statement of Conformity	FAA Form 8130-9		1		From Applicant, ABC company
2	Heat Treat specification	Heat-9992	C 9/1-97	1		Reviewed and evaluated process specification
3	Drilling fixture	7142772	A 8/2/98		1	Pilot holes are not located per the drawing requirements.
				1		Corrective Action: Pilot holes were re-located to the drawing requirements. ANM-120L John Doe John Doe
4	Drawing	7143999	n/c 7/2/98		1	Engine mount drawing was missing tolerances
			A 9/6/98	1		Corrective Action: drawing was corrected DER approval by Sam Smith Sam Smith ANM-0001
5	Engine mount	7143999-101	n/c 7/2/98	4		Verified heat treatment of engine mounts Serial # 001, 002, 003, 004
				4		Inspected engine mount dimension
				4		Verified Shot peen process
6	Assembly outline			1		Reviewed planning documentation
7	8130-3 tag					8130-3 tag was issued on 9-6-98

FAA Form 8100-1

SIGNATURE

Type Certification Conformities

1. Approving National Aviation Authority/Country:	2. AUTHORIZED RELEASE CERTIFICATE FAA Form 8130-3, AIRWORTHINESS APPROVAL TAG	3. Form Tracking Number:
FAA/United States		ST5839AT-T-01

4. Organization Name and Address:	5. Work Order/Contract/Invoice Number:
NorthstarTechnologies 30 Sudbury Rd. Acton, MA 01720	CM0303004

6. Item:	7. Description:	8. Part Number:	9. Eligibility: *	10. Quantity	11. Serial/Batch Number:	12. Status/Work:
1	CT1000 Gulfstream	3000G-A	G-IV & G-V	2	CT0027 & CT0033	PROTOTYPE

13. Remarks:

Above components conform to project conformity number ST5839AT-T and vendor design data report number CE414687002 "CONFORMITY" revision level A9.

14. Certifies the items identified above were manufactured in conformity to:	19. ☐ 14 CFR 43.9 Return to Service ☐ Other regulation specified in Block 13
X Approved design data and are in a condition for safe operation. ☐ Non-approved design data specified in Block 13.	Certifies that unless otherwise specified in Block 13, the work identified in Block 12 and described in Block 13 was accomplished in accordance with Title 14, Code of Federal Regulations, part 43 and in respect to that work, the items are approved for return to service.

15. Authorized Signature:	16. Approval/Authorization No.:	20. Authorized Signature:	21. Approval/Certificate No.:
Paul T. Horridge	NE-MIDO-42		
17. Name (Typed or Printed):	18. Date (mm/dd/yy):	22. Name (Typed or Printed):	23. Date (mm/dd/yy):
Paul T. Horridge	02/07/02		

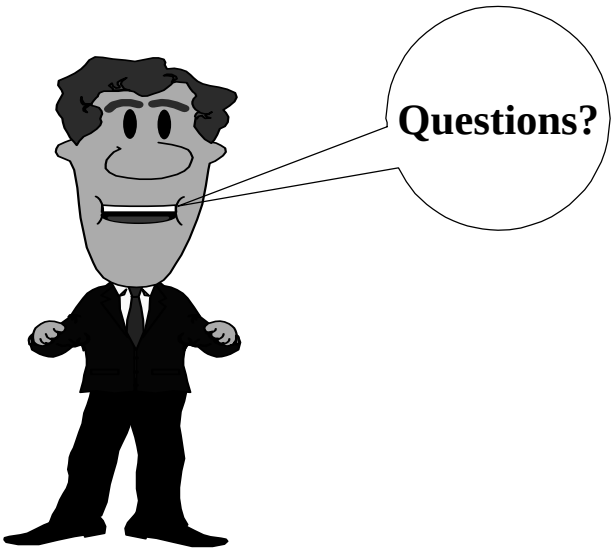
User/Installer Responsibilities

It is important to understand that the existence of this document alone does not automatically constitute authority to install the part/component/assembly.

Where the user/installer performs work in accordance with the national regulations of an airworthiness authority different than the airworthiness authority of the country specified in Block 1, it is essential that the user/installer ensures that his/her airworthiness authority accepts parts/components/assemblies from the airworthiness authority of the country specified in Block 1.

Statements in Blocks 14 and 19 do not constitute installation certification. In all cases, aircraft maintenance records must contain an installation certification issued in accordance with the national regulations by the user/installer before the aircraft may be flown.

FAA Form 8130-3 (4-01) *Installation not eligibility with applicable technical data. NSN: 0052-00-012-9003



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